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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/726,574	12/04/2003	Shihe Fan	48679	5066

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EXAMINER	
PARA, ANNETTE H	

ART UNIT	PAPER NUMBER
1661	

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
3 MONTHS	01/05/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Office Action Summary

Application No.

10/726,574

Applicant(s)

FAN ET AL.

Examiner

Annette H. Para

Art Unit

1661

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on October 4, 2006.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-32 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-32 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

Art Unit: 1661

DETAILED ACTION

Listing of the Claims

Claims 1-32 are examined. Claims 33-44 have been cancelled.

The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

Claim Rejections - 35 USC § 112

In the previous Office action, dated 5 July 2006, claim 11 was rejected under 35 U.S.C. 112 as containing subject matter, which was not described in the specification. The rejections of claim 11 under 35 U.S.C. 112 are hereby withdrawn because the claim has been deleted.

Claim Rejections - 35 USC § 102

Claims 1-4, 6-14, 16, 18, 20, 23, 24, 27, 29-31, remain rejected under 35 U.S.C.102 (b) as being clearly anticipated by Fan et al. (United States Patent No. 6, 444, 467 September 3, 2002). The rejection is repeated for the reasons set forth in the office action mailed on July 5, 2006

Applicant's arguments filed October 4, 2006 have been fully considered but are not found persuasive.

Applicants argue that Fan et al. teach a process in which somatic embryos are pre-germinated and desiccated then the dried germinants are sown directly into soil. The pre-germination step is carried out *in-vitro* and the sowing step is carried out *ex-vitro*. In contrast, the present invention somatic embryos or germinants are sown in *ex-vitro*... (*response, p.7*).

Art Unit: 1661

This is not found persuasive because Fan et al. teach that the pre-germination step can be carried out *in-vitro* or *ex-vitro* (column 5, lines 36-45, column 8, lines 59-67, and column 9, lines 1-65)

Applicants then argue that the nutrient of the present invention is a gel-like substance that contains solid particles. Furthermore, Applicant argues that there is no disclosure in Fan et al. of the use of a nutrient medium containing a flowable component and a solid component during the planting step (response p.8).

This is not found persuasive because the limitation that the nutrient is a gel-like substance is not recited in the present claims. Fan et al. teach the use of a nutrient medium containing a flowable component, which is the liquid media, and a solid component, which is the coconut husk fibers (column 9, lines 1-55).

Further Applicants argue that Fan et al. teach embryos sown naked on or in the surface of a soil-like medium, and that this form of sowing does not provide any direct support for the embryo, and the nutrient has not to be supplied separately (response p.8).

This is not found persuasive because Fan et al teach "placed the container with mesh-like material (solid component) onto liquid germination..., such that a thin layer of film of germination medium is formed around the somatic embryos" (column 8, lines 60-67, column 9, lines 1-2).

Furthermore, Applicants argue that the presence of 1-9% sucrose in the nutrient medium refers to the pre-germination step as well as the concept that the somatic embryos may be held at or above the surface of the medium by mean of a physical support (response p.9).

This is not found persuasive because Fan et al. teach applying a 3% sucrose solution as a mist to the **surface** of the growing substrate containing a sown **pre-germinated** embryo (column 10, lines 55-58). The fact that the growing steps relate to pre-germination steps is not relevant, because somatic embryos at the pre-germinated stage are heterotrophic somatic plant embryos as claimed in the present application. Somatic embryos are held to the surface with a physical support such that a thin capillary

Art Unit: 1661

layer or film of germination medium around the somatic embryos (column 8, lines 44-47). These steps are carried out in non-sterile conditions. (column 8, lines 26-27).

Applicants argue that Fan et al. fail to disclose the requirement for a quantity of nutrient medium onto the surface of a growth substrate in contact with the plant embryo, the medium comprising particles of a solid component contained in a flowable component (response p.9).

This is not found persuasive because Fan et al. teach somatic embryos sown discontinuous physical substrate (solid component), which is the coconut husk fibers, said support containing sufficient liquid germination (nutrient medium) to enable the formation of a thin capillary layer or film of germination medium (flowable component) (column 8, lines 50-55).

Applicants argue that the present invention cannot be considered obvious over Fan et al. taken alone (response p.9).

This is not found persuasive because it is reminded to the Applicants that a rejection under 102(b) is not an obviousness type of rejection. Fan et al. teaching does not make the present application obvious but anticipates all the steps claimed in the present application as explained above.

Claim Rejections - 35 USC § 103

Claims 15, 17, 19, 32 remain rejected under 35 U.S.C. § 103(a) as being unpatentable over Fan et al. (United States Patent No. 6, 444, 467) in view of each of Pierik (In Vitro Culture of Higher Plants 1997). The rejection is repeated for the reasons set forth in the office action mailed on July 5, 2006. Applicant's arguments filed October 4, 2006 have been fully considered but are not found persuasive.

Art Unit: 1661

Applicants argue that it is not possible apply a gelled medium by misting, irrigation (response p.10).

This is not found persuasive because the gelled agent could have been added to the liquid germination medium (column 8, line 52).

Applicants then argue that even if a gelled liquid could be applied in this way, the resulting medium would be unlikely to penetrate the layer of solid overlying the embryos (response p. 11).

This is not found persuasive because on pages 26-27 of the specification, Applicants state "if so desired, an aerosol in the form of a mist or spray may be supplied to the surface of the nursery containers...it is necessary to continue the supplementation of macro and micro-mineral elements during growth and development of the somatic embryos to ensure successful autotrophic development".

Moreover, Applicant argue that "a skilled person in the art would not see the provision of a gelling agent in the nutrient medium as assisting with the maintenance of such high humidity conditions as the vapour pressure of a liquid trapped in a gel is lowered" (response p. 11).

This is not found persuasive because a skilled person in the art would have modified the teaching of Fan et al. by adding agar knowing that such gelling agent serves as binding agent for nutrient and water, reducing the need for producing high humidity conditions by other methods.

Claims 21, 22, 25, 26, 28 remain rejected under 35 U.S.C. § 103(a) as being unpatentable over Fan et al. (United States Patent No. 6, 444, 467) in view of each of Gupta (United States Patent 5,563,061 1996) and of Tremblay et al. (Plant Cell, Tissue and Organ Culture 42: 39-46 1995). The rejection is repeated for the reasons set forth in the office action mailed on July 5, 2006.

Applicant's arguments filed October 4, 2006 have been fully considered but are not found persuasive.

Art Unit: 1661

Applicants argue that Gupta and Tremblay describe the use of various carbohydrates in liquid solution for bulking up immature cells, not mature embryos capable of germination. Applicants then argue that methods used for sterile *in-vitro* cell culture could not be used in germination of mature embryos in non-sterile environment (response p. 11).

This is not found persuasive because Gupta teaches maltose used at the stage IV (mature embryos) (column 19, lines 9-10). The Gupta method used for *in-vitro* culture of mature embryos may be used *ex-vitro*; e.g. Fan et al. use the same method to germinate somatic embryos for sterile *in-vitro* or non-sterile *ex-vitro* culture. (columns 7-8).

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Future Correspondence

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Annette H. Para whose telephone number is (571) 272-0982. The examiner can normally be reached Monday through Thursday from 5:30 a.m. to 4:00 p.m.

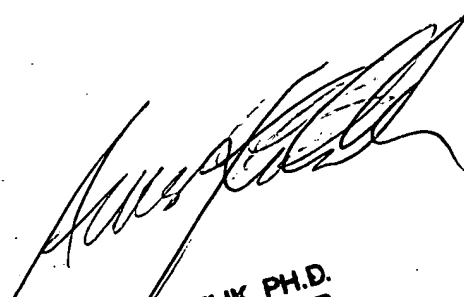
If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Anne Marie Grunberg, can be reached at (571) 272-0975. The fax number for the organization where the application or proceeding is assigned is (571) 273-8300.

Art Unit: 1661

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either the Private PAIR or the Public PAIR. Status information for unpublished applications is available through the Private PAIR only.

For more information about the PAIR system, see <http://pair-direct.uspto.gov> . Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Annette H Para
December 20, 2006



ANNE KUBELIK, PH.D.
PRIMARY EXAMINER